

REMARKS

New claims 25-27 have been added directed to optical devices employing the claimed film. Support may be found at page 1, line 12 et seq and at page 4, line 11 et seq.

Several amendments have been made to claim 1. First, the term "fixed" has been inserted to modify the type of liquid crystal material present in the film of the claim. Thus, the material is both "fixed" and "aligned". The term "fixed" is employed, for example, at specification page 19/17; 23/13; 25/11; 26/26; and 28/9. The term "fixed" means that the material is not free to change position as would a liquid crystal in a liquid medium such as an imaging cell itself. The term "aligned" means that the material throughout the film layer is ordered in a particular orientation. The presence of a determined amount of the azonium salt enables one to establish the desired degree of tilt in the film layer upon curing. The alignment is measurable in terms of the tilt angle and the ability to control this angle using the amount of azonium salt is key to the invention. Note in each of the Tables I-III of the specification that the tilt angle increases as the amount of azonium is increased.

Claims 1-17 and 23 stand rejected under 35 U.S.C. 112, first paragraph. According to the Examiner:

the specification, while being enabling for the azonium salt disclosed therein, does not reasonably provide enablement for broad species represented by formula (I). For example, the X, Z and R groups may form a ring. The species for forming a "ring" in the specification are only exemplified for certain rings. There are no ring containing four, seven and up except naphthalenyl ring. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use in the invention commensurate in scope with these claims.

The present amendment narrows the claims to the possible formation of only certain ring groups, (phenyl, naphthyl, pyranyl, pyridyl, quinolinyl, cyclohexenyl, oxazolyl, and pyrazolyl) each of which is represented in at least one example structure extending from page 9-17 of the specification.

Claims 1-8 and 10-17 stand rejected under 35 U.S.C. 102(b)/(e) as being anticipated by Ono (EP 1,033,731 or equivalent US 6,495,067). According to the Examiner:

The reference discloses an electrochemical cell having an electrolyte containing liquid crystal compound(s) of formula (IA). The reference liquid crystal composition comprising at least one liquid crystal compound represented by formula (I-1) or (I-2) and at least one compound selected from an alkali metal salt and an alkaline earth metal salt (see from page 3, line 9 to page 4, line 4 and section [085]). The alkali or alkaline earth metal salt is added in such an amount that is uniformly mixed with the liquid crystal compound or the liquid crystal compound mixture, which is preferably 0.1 to 5 molar equivalents to the total amount of the liquid crystal compounds. The formula (I-2) of the reference contains an azonium salt (see formulae F-42, F-44 to F-46 and F-51 to F-55). The photoelectric device of the reference comprises a multiple layer including an electrically conductive substrate, a photosensitive layer, a charge transporting layer and a counter layer (see Figure 1 and col. 39, lines 5-60). The reference teaching anticipates the claimed invention.

It is believed that the present invention is readily distinguished from the Ono reference. Appendices A and B hereto summarize the distinctions between the photo-electrochemical device of the Ono reference and the film of the present invention. First of all, the claims of the present invention are directed to a multilayer film while the Ono reference is directed to a three dimensional photoelectrochemical cell, not a film. In the Ono reference, the pyridinium compound acts as an electrolyte for the movement of charged materials. The compound is not fixed and its molecules are not aligned in any particular direction nor do they need to be.

In contrast, the present invention is a film that manages light passing through it and contains an azonium compound as a manufacturing tool to control the tilt angle of the liquid crystal material before fixing it in position. This layer is aligned or “fixed” so as to enable it to compensate for the imperfections of the liquid crystal cell or other optical devices such as polarizers. Although liquid crystal materials are used to form the aligned liquid crystal layer, the layer is fixed or locked in place by a subsequent step so they are no longer free to reorient in response to outside stimuli. Selecting the amount of the azonium compound enables control of the tilt angle of the film upon fixing which is a need peculiar to the use of LC displays. There is no similarity between the photo-electrochemical cell of Ono and the film of controlled tilt of the invention. There is no desire to conduct electricity through the film of the present invention so there would appear to be no motivation to employ the compounds taught to be

useful for that purpose by Ono in the film of the invention. Ono makes no suggestion of using such compounds to influence tilt angle.

A thorough review of the Ono patent art does not disclose the key features of the invention nor is there any motivation to arrive at the invention from the teachings of the art.

Claims 1-4, 6-7, 11-12 and 14-15 stand rejected under 35 U.S.C. 102(b) as being anticipated by JP 2002-358821 to Kato et al or equivalent US 2004/0169158. Kato also fails to disclose key features of the claimed invention. In accordance with the Abstract, it is clear that the liquid crystal materials are mixed with a molten organic salt and are thus neither fixed nor aligned as are the liquid crystals in the present invention. The molecules of the reference do not appear to be directed in a particular direction. Further, the function of the materials is to aid ionic conduction and not to affect the tilt angle.

Claims 18-22 and 24 stand objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitation of the base claim and any intervening claims. In view of the distinctions from the art raised above, these claims have not been written in independent form because the independent claim appears patentable in the opinion of Applicants' attorney.

The Examiner is respectfully requested to withdraw the outstanding rejection and to pass the subject application to Allowance.

Respectfully submitted,



Attorney for Applicant(s)
Registration No. 25,518

Arthur E. Kluegel/dlm
Rochester, NY 14650
Telephone: 585-477-2625
Facsimile: 585-477-1148

If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.

Encl: Appendices A and B